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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,192	08/01/2001	Vivek Amir Jairazbhoy	10541-609	6436

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Chicago, IL 60610

EXAMINER

TRINH, MINH N

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/920,192

Applicant(s)

JAIRAZBHOY ET AL.

Examiner

Minh Trinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- ☐ Interview Summary (PTO-413) Paper No(s). _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claim 21-27 in Paper No. 5 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 8-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 5. An Office Action on the merits of elected claims 21-27 follows.

Specification

3. The abstract of the disclosure should be revised to reflect the claimed article. Correction is required. See MPEP § 608.01(b).

Claim Objections

4. "An" (claim 22-24 and 26-27, line 1) should be: -- The -- to place the claim(s) in dependent formats.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 21-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The following are examples:

a) the phrase: "each mounting pad" (claim 21, line 6) is not clear as to whether "each mounting pad" is one of the "at least two mounting pads" as previously cited in claim 21, line 4. If this is the case, the limitation: "each mounting pad" should be changed to: --each of the mounting pads--. Also, "each mounting pad is/ are"(claim 22, line 2) should be changed to: --each of the mounting pads is--, in order to clarify the claimed subject matter.

Is "each of mounting pad "(claim 25, lines 4-5) is as same as one of the "two mounting pads" of claim 25, line 3. Please clarify.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 21 as best understood is rejected under 35 U.S.C. 102(a) as being anticipated by Lake (6,251,211). Lake discloses the electronic assembly for connecting

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an electronic component thereto, comprising: an electrically insulation substrate 40; mounting pads 42 disposed on said substrate in matched relation with respective terminations of the electronic component 10; and at least one metallic bump of the component 10 attached to each mounting pads 42 within a projected footprint of the electronic component 10 (see Figs. 1 and 3, and the discussed at col. 3, lines 42-52).

9. Claims 21 and 25-27 as best understood are rejected under 35 U.S.C. 102(b) as being anticipated by Sweitzer (US 5,615,477).

As applied to claims 21 and 25, Sweitzer discloses the electronic assembly for connecting an electronic component thereto, comprising: an electrically insulation substrate 30; mounting pads 37 disposed on said substrate in matched relation with respective terminations of the electronic component 10; and at least one metallic bump of the component 10 attached to each mounting pads 42 within a projected footprint 38 of the electronic component 10 (see Figs. 3A and 3B, and the discussed at col. 11, lines 59-65).

As applied to claim 22, Sweitzer teaches the at least one bump on each of the mounting pads is arranged generally symmetrically thereon with respect to a central longitudinal axis of said projected footprint 38 as recited in claim 22 (see Fig. 3A, and the discusses at col. 9, lines 5-8).

As applied to claim 23, Sweitzer teaches the mounting pads and the metallic bumps are made of different metal (see the discussion at col. 11, lines 1-15).

Limitation of claim 25 is met as the above discussion.

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As applied to claim 27, Sweitzer teaches the bonding material is being soldered (see col. 4, lines 30-35).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sweitzer in view of Brady et al (US 5,134,460) and S. J. Lins et al (3,373,481).

Sweitzer does not teach the mounting pads are being copper and the bumps are made of aluminum. Brady et al teach the bumps are being aluminum (see col. 10, lines 41-45). Regarding the mounting pads are being copper. It is conventional and well known in the art to use copper as the mounting pad in order to provide a good connection in fact a reference to S.J. Lins et al, at col. 4, lines 8-10 discussed the concept of connection pads 24's are copper). Therefore, it would have been obvious to one ordinary skill in the art, at the time of the invention to employ the teachings of mounting pads are copper as taught by S.J. Lins et al in combination with the bumps are aluminum as taught by Brady et al onto the invention of Sweitzer in order to form a bonding structure which meet manufacturing requirement. Furthermore, it would have been an obvious matter of design choice to choose any desired bonding pads and bumps since applicant has not disclosed that these features are critical, patentably

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distinguishing features and it appears that the invention would perform equally well with the pads and bumps materials as suggested by the prior art references (see Sweitzer's Fig.3B, references 37 and 16, and the discussion at col. 4 of Brady).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art teaching of interconnection PCB with an associated chip or component thereto.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Trinh whose telephone number is (703) 305-2887. The examiner can normally be reached on Monday -Thursday 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (703) 308-1789. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.



Examiner Group 3700

Mt
10/22/03